Status of the Claims

Claim 1. (Original) A medical device comprising:

(a) a substrate having a surface; and

(b) a hydrogel coating disposed over at least a portion of the substrate surface and comprising inner and outer regions, said inner region exhibiting more absorption upon hydration than does said outer region, said inner region comprising a first hydrogel polymer and said outer region comprising a second hydrogel polymer, said first and second hydrogel polymers being the same or different, and said hydrogel coating further comprising a contrast agent,

wherein said hydrogel coating is differentiated from the environment surrounding the hydrogel coating under magnetic resonance imaging upon insertion or implantation of said medical device into a patient.

Claim 2. (Original) The medical device of claim 1, wherein said first and second hydrogel polymers are the same.

Claim 3. (Original) The medical device of claim 1, wherein said first and second hydrogel polymers are different.

Claim 4. (Original) The medical device of claim 2, wherein said first and second hydrogel polymers comprise polysaccharide or polypeptide chains.

Claim 5. (Original) The medical device of claim 3, wherein said first and second hydrogel polymers comprise polysaccharide or polypeptide chains.

Claim 6. (Original) The medical device of claim 2, wherein said first and second hydrogel polymers are selected from alginic acid, hyaluronic acid, acrylic acid, methacrylic acid, chitin, chitosan, carboxymethyl chitosan, carboxymethyl cellulose, hydroxypropyl cellulose, collagen, gelatin, poly(hydroxy ethyl methacrylate), polyvinyl alcohol, polyacrylamide, poly (N-vinyl pyrrolidone), polyethylene oxide, hydrolyzed

polyacrylonitrile, polyethylene amine, heparin, heparin sulfate, dextran, carboxymethyl dextran, chondroitin sulfate, cationic guar, cationic starch, carboxymethyl starch, gellan, xanthan, and salts and copolymers thereof.

Claim 7. (Original) The medical device of claim 3, wherein said first and second hydrogel polymers are selected from alginic acid, hyaluronic acid, acrylic acid, methacrylic acid, chitin, chitosan, carboxymethyl chitosan, carboxymethyl cellulose, hydroxypropyl cellulose, collagen, gelatin, poly(hydroxy ethyl methacrylate), polyvinyl alcohol, polyacrylamide, poly (N-vinyl pyrrolidone), polyethylene oxide, hydrolyzed polyacrylonitrile, polyethylene amine, heparin, heparin sulfate, dextran, carboxymethyl dextran, chondroitin sulfate, cationic guar, cationic starch, carboxymethyl starch, gellan, xanthan, and salts and copolymers thereof.

Claim 8. (Original) The medical device of claim 2, wherein said inner and outer regions are each crosslinked.

Claim 9. (Original) The medical device of claim 3, wherein said inner and outer regions are each crosslinked.

Claim 10. (Original) The medical device of claim 1, wherein said inner and outer regions are each crosslinked and wherein the crosslink density of said outer region is higher than the crosslink density of said inner region.

Claim 11. (Original) The medical device of claim 1, wherein said inner and outer regions are each crosslinked and wherein said outer region comprises an ionic crosslinking agent and wherein said inner region comprises a covalent crosslinking agent.

Claim 12. (Original) The medical device of claim 11, wherein said ionic crosslinking agent comprises a multivalent cation.

Claim 13. (Original) The medical device of claim 12, wherein said multivalent cation is selected from calcium, magnesium, barium, strontium, boron, beryllium, aluminum, iron, copper, cobalt, lead and silver cations.

Claim 14. (Original) The medical device of claim 12, wherein said multivalent cation is a calcium ion.

Claim 15. (Original) The medical device of claim 11, wherein said covalent crosslinking agent is a polyfunctional crosslinking agent.

Claim 16. (Original) The medical device of claim 15, wherein said polyfunctional crosslinking agent comprises diazonium, azide, isocyanate, acid chloride, acid anhydride, imino carbonate, amino, carboxyl, epoxy, hydroxyl, aldehyde, carbodimide, or aziridine groups.

Claim 17. (Original) The medical device of claim 15, wherein said polyfunctional crosslinking agent is a polyfunctional aziridine compound.

Claim 18. (Original) The medical device of claim 11, wherein said first and second hydrogel polymers comprise alginic acid or a salt of alginic acid.

Claim 19. (Original) The medical device of claim 1, wherein said first region comprises said contrast agent.

Claim 20. (Original) The medical device of claim 1, wherein said contrast agent comprises paramagnetic ions.

Claim 21. (Original) The medical device of claim 20, wherein said paramagnetic ions are selected from chromium (III), manganese (II), iron (III), iron (II), cobalt (II), copper (II), nickel (II), praseodymium (III), neodymium (III), samarium (III), ytterbium (III),

gadolinium (III), terbium (III), dysprosium (III), holmium (III) and erbium (III).

Claim 22. (Original) The medical device of claim 1, wherein said contrast agent comprises gadolinium (III) ions.

Claim 23. (Original) The medical device of claim 1, wherein said contrast agent comprises a paramagnetic ion chelation complex.

Claim 24. (Original) The medical device of claim 23, wherein said paramagnetic ion chelation complex is covalently bonded to said first hydrogel polymer.

Claim 25. (Original) The medical device of claim 23, wherein said paramagnetic ion chelating complex comprises organic acid functional groups.

Claim 26. (Original) The medical device of claim 25, wherein said paramagnetic chelation complex comprises diethylenetriamine pentaacetic acid (DTPA).

Claim 27. (Original) The medical device of claim 1, wherein said contrast agent comprises paramagnetic particles.

Claim 28. (Original) The medical device of claim 1, further comprising a lubricious coating layer disposed on said hydrogel coating.

Claim 29. (Original) The medical device of claim 1, wherein said medical device is selected from the group consisting of a catheter, a guide wire, a balloon and a stent.

Claim 30. (Currently Amended) The medical device of claim 29, wherein said medical device is ~~catheter is~~ a neuro-interventional microcatheter.

Claim 31. (Currently Amended) The medical device of claim 29, wherein said

medical device is a stent is selected from the group consisting of endovascular, biliary, tracheal, gastrointestinal, urethral, ureteral and esophageal stents.

Claim 32. (Currently Amended) The medical device of claim 29, wherein the medical device ~~stent~~ is a coronary stent.

Claim 33. (Original) The use of the medical device of claim 1 in a medical procedure, wherein during or after insertion or implantation of said medical device in a patient, the position of the medical device is viewed under magnetic resonance imaging.

Claim 34. (Original) A medical device comprising:
(a) a substrate; and
(b) a hydrogel coating comprising a contrast agent and a polysaccharide hydrogel polymer disposed over at least a portion of the substrate surface, said hydrogel coating comprising an inner region that comprises a covalent crosslinking agent and an outer region that comprises an ionic crosslinking agent;

wherein said hydrogel coating is differentiated from the environment surrounding the hydrogel coating under magnetic resonance imaging, upon insertion or implantation of said medical device into a patient.

Claim 35. (Original) The medical device of claim 34, said ionic crosslinking agent comprises a multivalent cation, and said covalent crosslinking agent comprises a polyfunctional covalent crosslinking agent comprising diazonium, azide, isocyanate, acid chloride, acid anhydride, imino carbonate, amino, carboxyl, epoxy, hydroxyl, aldehyde, carbodimide, or aziridine groups.

Claim 36. (Original) The medical device of claim 34, wherein said polysaccharide hydrogel polymer is alginic acid or a salt thereof, said ionic crosslinking agent comprises calcium cations, and said covalent crosslinking agent comprises a polyfunctional aziridine compound.

Claim 37. (Original) The medical device of claim 34, wherein said first region comprises said contrast agent.

Claim 38. (Original) The medical device of claim 34, wherein said contrast agent comprises gadolinium (III) ion and a chelating ligand comprising organic acid functional groups.

Claim 39. (Original) The medical device of claim 34, wherein said contrast agent comprises a gadolinium (III) diethylenetriamine pentaacetic acid complex.

Claim 40. (Original) The medical device of claim 34, wherein said outer region comprises plasticizer.

Claim 41. (Original) The medical device of claim 34, wherein said inner and outer regions further comprise a salt.